



COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**

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**APPROVAL FOR REMEDIAL USE**

Pursuant to Title 5, 310 CMR 15.000

Name and Address of Applicant:

Shane Blackford  
Advanced Drainage Systems, Inc.  
4640 Trueman Blvd  
Hilliard, OH 43026

Trade name of technology and model: **GEO-flow® Pipe Leaching System** (hereinafter called the "System"). The applicant's "GEO-flow® Pipe Leaching System Design, Installation and Operating Manual" including schematic drawings of the System with typical System installations, technology inspection checklist and a System Installation Form are part of this Certification.

Transmittal Number: W088685  
Date of Issuance: July 7, 2008  
Date of Expiration: July 7, 2013

**Authority for Issuance**

Pursuant to Title 5 of the State Environmental Code 310 CMR 15.000, the Department of Environmental Protection hereby issues this Approval to: Advanced Drainage Systems, Inc., 4640 Trueman Blvd, Hilliard, OH 43026 (hereinafter "the Company"), approving the System described herein for Remedial Use in the Commonwealth of Massachusetts. Sale and use of the System are conditioned on compliance by the Company and the System owner with the terms and conditions set forth below. Any noncompliance with the terms or conditions of this Certification constitutes a violation of 310 CMR 15.000.

Glenn Haas, Acting Assistant Commissioner  
Bureau of Resource Protection

July 7, 2008  
Date

**I. Purpose**

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD# 1-866-539-7622 or 1-617-574-6868.



1. This approval for Remedial Use authorizes, with the necessary permits and approvals required by 310 CMR 15.000, the use and installation of the System in Massachusetts.
2. The System may only be installed where conditions meet the criteria of 310 CMR 15.284(2). The System is an alternative system approved in accordance with 310 CMR 15.280 through 15.289 and is used to treat and dispose of wastewater.
3. This Approval for Remedial Use allows the use of the System where the local approving authority finds that the System is for upgrade of a failed, failing or nonconforming system. The Title 5 design flow for the facility must be less than 10,000 gallons per day.

## **II. Design and Construction Standards**

1. The System is a subsurface unit that replaces a soil absorption system (SAS) designed in accordance with 310 CMR 15.000. The System consists of a 10-inch diameter corrugated high-density polyethylene pipe perforated with eight 7/16<sup>th</sup> inch diameter holes equally distributed around its circumference at each corrugation and manufactured in 10 foot lengths. The exterior of the pipe has two layers of material, a 20 oz/yd<sup>2</sup> geo-grid polypropylene grid inner layer and an outer layer wrapping of 4 ounce/yd<sup>2</sup> polyethylene non-woven geotextile fabric. The System also includes a minimum six inches of sand (concrete sand-ASTM C-33) surrounding exterior of GEO-flow pipe. Depth to the estimated seasonal high groundwater elevation shall be measured from the bottom of the System sand below the GEO-flow pipe.
2. The System sand shall meet ASTM C-33 specifications.
3. Systems shall be installed with differential venting for aeration and inspection at the end of each run of pipe, section or serial bed and whenever the System is installed under impervious surfaces.
4. The System shall be designed and installed using distribution boxes for inspection ports. The pipe between the distribution box and the System shall be installed at a minimum slope of 0.02 feet/foot.
5. Serial distribution laterals shall be limited to no more than 500 gpd. Multi-level systems shall not be allowed.
6. The System shall be installed in a bed or field configuration, as defined in 310 CMR 15.252. The effective leaching area shall be the bottom area (length times width) of the field or bed as presented in the Company's "GEO-flow Pipe Leaching System Design, Installation and Operating Manual".
7. Effluent loading rates adjusted to reduce the soil absorption system by 40 percent shall be in accordance with 310 CMR 15.242. No System shall be installed with a leaching area of less than 400 square feet.

8. Systems with design flows of 2000 gpd or greater shall not require pressure distribution in accordance with 310 CMR 15.231.
9. System component material specifications for the pipe, grid and fabric shall comply with the specifications identified in the application. Prior approval from the Department for any change from these specifications shall be requested in writing.
10. The System may be used in soils with a percolation rate of up to 90 minutes per inch (MPI). For soils with a percolation rate of 60 to 90 MPI, the effluent loading rate shall be 0.15 GPD/SF.

### **III. Allowable Soil Absorption System Design**

1. The following reductions are allowable for Soil Absorption Systems (SAS) when designing the System.
  - A. The approving authority may allow a reduction in the required separation between the bottom of the SAS and the high groundwater elevation of up to two feet. This provides a minimum separation of two feet (in soils with a recorded percolation rate of more than two minutes per inch) or a three feet (in soils with a recorded percolation rate of two minutes or less per inch); or
  - B. The approving authority may allow a reduction in the required four feet of naturally occurring pervious material in an area with no less than two feet of naturally occurring pervious material, provided that it has been demonstrated that the four foot requirement cannot be met anywhere on the site.

If a remedial System needs either of the allowable reductions listed above, then the reductions must first be approved by the local approving authority and then approved by the Department pursuant to 310 CMR 15.284 through filing a BRPWP 64c permit application.

2. Additional reductions allowable for Soil Absorption System (SAS) when designing the System:
  - A. When using 1A, or 1B above for the System where full compliance with 310 CMR 15.000 is not feasible, the local approving authority may consider granting local upgrade approvals in accordance with the provisions of 310 CMR 15.401 – 15.405.  
**For example:**
    - i. When considering 1B above, an applicant may request from the local approving authority and the local approving authority may consider a local upgrade approval for reduction to estimated high groundwater in accordance with 310 CMR 15.405(1)(h).
    - ii. The local approving authority may not consider granting a local upgrade approval for a further reduction of the SAS in accordance with 310 CMR 15.405(1)(c).
  - B. If any remedial system is still not able to achieve full compliance with all of the minimum set back distances in 310 CMR 15.211, even taking into account

provisions for local upgrade approval in accordance with the provisions of 310 CMR 15.401 – 15.405, the applicant must obtain variance(s) from the approving authority and then approval from the Department pursuant to 310 CMR 15.410 through filing a BRPWP 59b permit application.

#### **IV. General Conditions**

1. All provisions of 310 CMR 15.000 are applicable to the use of this System, the System owner and the Company, except those that specifically have been varied by the terms of this Approval.
2. Any required operation and maintenance, monitoring and testing shall be performed in accordance with a Department approved plan. Any required sample analysis shall be conducted by an independent U.S.EPA or DEP approved testing laboratory, or a DEP approved independent university laboratory. It shall be a violation of this Approval to falsify any data collected pursuant to an approved testing plan, to omit any required data or to fail to submit any report required by such plan.
3. The facility served by the System and the System itself shall be open to inspection and sampling by the Department and the local approving authority at all reasonable times.
4. In accordance with applicable law, the Department and the local approving authority may require the System owner to cease operation of the system and/or to take any other action as it deems necessary to protect public health, safety, welfare and the environment.
5. The Department has not determined that the performance of the System will provide a level of protection to public health and safety and the environment that is at least equivalent to that of a sewer system. No System shall be installed, upgraded or expanded, if it is feasible to connect the facility to a sanitary sewer, unless as allowed by 310 CMR 15.004. When a sanitary sewer connection becomes feasible, the facility served by the System shall be connected to the sewer, within 60 days of such feasibility, and the System shall be abandoned in compliance with 310 CMR 15.354, unless a later time is allowed, in writing, by the approving authority.
6. Design, installation and operation shall be in strict conformance with the Company's DEP approved plans and specifications, 310 CMR 15.000 and this Approval.

#### **V. Conditions Applicable to the System Owner**

1. The System is approved for the treatment and disposal of sanitary sewage only. Any wastes that are non-sanitary sewage generated or used at the facility served by the System shall not be introduced into the System and shall be lawfully disposed.
2. The System owner shall at all times properly operate and maintain the on-site sewage disposal system. The System owner shall have the System inspected annually by an operator trained by the Company and shall submit the results of that inspection, on a technology checklist, to the local approving authority.

3. The System owner shall furnish the Department any information that the Department requests regarding the operation and performance of the System, within 21 days of the date of receipt of that request.
4. No System owner shall authorize or allow the installation of the System other than by a person trained by the Company to install the System.
5. Prior to the issuance of a Certificate of Compliance for the System, the System owner shall record and/or register in the appropriate Registry of Deeds and/or Land Registration Office, a Notice disclosing both the existence of the alternative septic system subject to this Approval on the property and the Department's approval of the System. If the property subject to the Notice is unregistered land, the Notice shall be marginally referenced on the owner's deed to the property. Within 30 days of recording and/or registering the Notice, the System owner shall submit the following to the Department and the local approving authority: (i) a certified Registry copy of the Notice bearing the book and page/instrument number and/or document number; and (ii) if the property is unregistered land, a Registry copy of the owner's deed to the property, bearing the marginal reference.

#### **VI. Conditions Applicable to the Company**

1. By January 31<sup>st</sup> of each year, the Company shall submit a report to the Department, signed by a corporate officer, general partner or Company owner that contains information on the System, for the previous calendar year. The report shall state: the number of units of the System sold for use in Massachusetts including the installation date and date of start-up during the previous year; the address of each installed System, the owner's name and address, the type of use (e.g. residential, commercial, school, institutional) and the design flow; and for all Systems installed since the date of issuance of this Approval, all known failures, malfunctions, and corrective actions taken and the address of each such event. Electronic file submittal of annual reports, in spreadsheet format, is encouraged and can be sent to the Department at [Dep.Waterpermitting@state.ma.us](mailto:Dep.Waterpermitting@state.ma.us). The emailed file should identify and include in the subject line the technology name, approval category and reporting year. Also, the Company must maintain copies of all completed inspection forms and certified laboratory results for possible audit for at least three years.
2. The Company shall notify the Director of the Wastewater Management Program at least 30 days in advance of the proposed transfer of ownership of the technology for which this Approval issued. Said notification shall include the name and address of the proposed new owner and a written agreement between the existing and proposed new owner containing a specific date for transfer of ownership, responsibility, coverage and liability between them. All provisions of this Approval applicable to the Company shall be applicable to successors and assigns of the Company, unless the Department determines otherwise.
3. The Company shall maintain a System design, installation and operating manual, including information on substances that should not be discharged to the System and a recommended schedule for maintenance of the System essential to consistent successful performance of the installed Systems. Revisions to the manual shall be requested in writing to the Department for approval and incorporation onto the Departments web pages.

4. The Company shall make available, in print and electronic format, the approved manual in paragraph 3 above to System owners, operators, designers and installers.
5. The Company shall institute and maintain a training program in the proper design, installation and inspection techniques of its System and provide a training course at least annually for prospective designers, installers and inspectors. The Company shall certify that installers and inspectors have completed the Company's training class, maintain a list of trained installers and inspectors, submit a copy to the Department, and update the list annually. Updated lists shall be forwarded to the Department.
6. The Company shall furnish the Department any information that the Department requests regarding the System, within 21 days of the receipt of that request.
7. The Company shall include copies of this Approval and the procedures in Section VI (3) with each System that is sold. In any contract executed by the Company for distribution or re-sale of the System, the Company shall require the distributor or re-seller to provide each purchaser of the System with copies of this Approval and the procedures described in Section VI (3).
8. The Company shall comply with 310 CMR 15.000 and all Department policies and guidance that apply and as they may be amended from time to time.
9. If the Company wishes to continue this Approval after its expiration date, the Company shall apply for and obtain a renewal of this Approval. The Company shall submit a renewal application at least 180 days before the expiration date of this Approval, unless written permission for a later date has been granted in writing by the Department. This approval shall continue in force until the Department has acted on the renewal application.
10. The application submitted by the Company has demonstrated that the System is effectively equivalent to similar systems approved by the Department. To verify treatment capabilities of the GEO-flow Pipe Leaching System, the Company has provided System materials and technical assistance allowing for installation of the System at the Massachusetts On-Site Systems Testing Center in Bourne, Massachusetts during the summer of 2008. At the completion of at a minimum 12 months of testing the Department will review the testing results. In accordance with Section VIII of this approval, and after reviewing the results of the above referenced testing, the Department may modify this approval. This does not diminish or lessen the ability or right of the Department to review System information at any time and to take appropriate action for the protection of public health and safety and the environment.

#### **VII. Conditions Applicable to Installers of the System**

1. Each Installer shall install the System in accordance with Company training on the installation of the System and the conditions of this Certification.
2. No Installer shall install the System unless the Installer has been trained by the Company on installation of the System or the installation is overseen by a Company representative(s).

3. Installers shall complete the System Installation Form and forward a copy to the Company and the local approving authority.
4. The System installer shall provide the System owner and the local approving authority with a bill of lading certifying that the System sand meets ASTM C-33 specifications.

#### **VIII. Reporting**

1. All notices and documents required to be submitted to the Department by this Approval shall be submitted to:

Director  
Wastewater Management Program  
Department of Environmental Protection  
One Winter Street - 5th floor  
Boston, Massachusetts 02108

#### **IX. Rights of the Department**

1. The Department may suspend, modify or revoke this Approval for cause, including, but not limited to, non-compliance with the terms of this Approval, non-payment of the annual compliance assurance fee, for obtaining the Approval by misrepresentation or failure to disclose fully all relevant facts or any change in or discovery of conditions that would constitute grounds for discontinuance of the Approval, or as necessary for the protection of public health, safety, welfare or the environment, and as authorized by applicable law. The Department reserves its rights to take any enforcement action authorized by law with respect to this Approval and/or the System against the owner, or operator of the System and/or the Company.

#### **X. Expiration Date**

1. Notwithstanding the expiration date of this Certification, any System installed prior to the expiration date of this Certification, and approved, installed and maintained in compliance with this Certification (as it may be modified) and 310 CMR 15.000, may remain in use unless the Department, the local approving authority, or a court requires the System to be modified or removed, or requires discharges to the System to cease.